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| 10/576,361 | 04/19/2006 | Takahiro Yoneda | P29805 | 2175 |
| 52123 7590 11/12/2008 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191 | | | EXAMINER CHAU, PETER P | |
| | | | ART UNIT 4144 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/576,361 | Applicant(s) YONEDA ET AL. | |
| | Examiner PETER CHAU | Art Unit 4144 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 8-11 is/are rejected.
- 7) ☒ Claim(s) 5-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/18/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. **Claims 1-11** have been examined and are pending.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. An initialed and dated copy of Applicant's IDS form 1449 submitted on 7/18/2006, is attached to the Office Action.

Specification

4. **Claim 3** is objected to because of the following informalities: There are grammatical errors within the claim, for example, "...when other end node..." Please clarify what is other end node. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claims 1 and 2** recites the limitation "the sender" in page 44 line 12 and page 45 line 1 respectively. There is insufficient antecedent basis for this limitation in the claim.

Art Unit: 4144

The examiner will assume "the sender" to be an end node that joins the multicast communication.

7. **Claim 2** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The applicant states, "a step of setting a forwarding rule..."

The applicant does not state what is doing the step of setting. The examiner will assume what is doing the step of setting to be an end node that joins the multicast communication.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. **Claims 1 and 4** are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. PGPub 2004/0252691 Hori et al. (hereinafter "Hori").

As per claim 1, Hori teaches a packet distribution control method in multicast communication of one-to-many or many-to-many communication, said packet distribution control method comprising(page 3 paragraph [0053], disclose a VoIP server being able to multicast MOH (Music on Hold)): **a step in which a end node that is capable of using both IP multicast and IP unicast and that joins the**

Art Unit: 4144

multicast communication checks whether or not a receiver end node of a next packet distribution destination is capable of communicating in IP multicast; and a step in which the sender end node switches packet distribution to the receiver end node between IP multicast and IP unicast according to the check result (page 3 paragraph [0053], discloses a VoIP server (end node) being able to multicast or unicast MOH data; page 4 paragraph [0070], discloses the VoIP server sending out a test message in multicasting packets to multiple addresses to determine whether or not the receiving end can perform multicast communication; page 4 paragraph [0074], discloses a response being received from a receiving end to the VoIP server and the server then determines that the receiving end can perform multicast communication and transmits multicast packets; page 5 paragraph [0081], discloses a response not being received after a predetermined time and therefore the server determines the receiving end can not perform multicast communication and transmits data using unicast).

As per claim 4, Hori teaches the packet distribution control method according to claim 1, further comprising: a step in which an end node joining multicast communication transmits a response request message in IP multicast to other end nodes than its own end node, with respect to which it is unclear whether or not IP multicast communication is possible, and judges an end node returning a response message in response to the response request message as an end node capable of communicating in IP multicast (page 4 paragraph [0070], discloses the VoIP server sending out a test message in multicasting packets to multiple

Art Unit: 4144

addresses to determine whether or not the receiving end can perform multicast communication; page 4 paragraph [0074], discloses a response being received from a receiving end to the VoIP server and the server then determines that the receiving end can perform multicast communication).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

Art Unit: 4144

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. **Claims 9 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,831,975 Chen et al. (hereinafter "Chen") and in further view of U.S. Patent 5,903,559 Acharya et al. (hereinafter "Acharya").

As per claim 9, while Chen teaches a communication terminal which joins multicast communication that is one-to-many or many-to-many communication, comprising: an multicast section that uses an multicast address in packet distribution; an unicast section that uses an address in packet distribution; and a switching section that switches between multicast and unicast according to a receiver end node (page 2 lines 15-16, discloses the core node distributing cells to all destination in the multicast tree; page 4 lines 48-53, discloses the core node being part of the multicast tree (core node being able to multicast); page 10 lines 12-20, discloses when a joining node wants to join a multicast group, it sends a SETUP message towards the core node which is a point-to-point mechanism; page 4 lines 10-13, discloses a connection is initiated through point-to-point connection from the root to the leaves), **Chen does not disclose the use of IP (Internet Protocol).**

As regards to IP, the use of IP is well known in the art at the time of the invention and therefore would have been a design choice by the applicant to use ATM

Art Unit: 4144

or IP. However, IP offers an advantage of zero setup hop-by-hop communications (Acharya, page 5 lines 60-63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Chen's invention with Acharya's IP to provide zero setup hop-by-hop communications (Acharya, page 5 lines 60-63).

As per claim 11, while Chen teaches the communication terminal according to claim 9, wherein the communication terminal calculates a multicast distribution tree where multicast and unicast are both present to use both multicast and unicast for packet distribution (page 2 lines 48-53, discloses a core node forming a multicast tree with all the destination nodes; page 4 lines 48-53, discloses the core node being part of the multicast tree (core node being able to multicast); page 10 lines 12-20, discloses when a joining node wants to join a multicast group, it sends a SETUP message towards the core node which is a point-to-point mechanism), **Chen does not disclose the use of IP (Internet Protocol).**

As regards to IP, the use of IP is well known in the art at the time of the invention and therefore would have been a design choice by the applicant to use ATM or IP. However, IP offers an advantage of zero setup hop-by-hop communications (Acharya, page 5 lines 60-63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Chen's invention with Acharya's IP to provide zero setup hop-by-hop communications (Acharya, page 5 lines 60-63).

14. **Claims 2 and 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hori as applied to claim 1 above, and further in view of U.S. Patent 6,778,531 Kodialam et al. (hereinafter “Kodialam”) and in further view of U.S. PGPub 2005/0100016 Miller et al. (hereinafter “Miller”).

As per claim 2, while Hori teaches the packet distribution control method according to claim 1, Hori does not, but Kodialam teaches further comprising: a step of setting a forwarding rule for each end node joining multicast communication based on a multicast distribution tree (page 5 lines 1-12, discloses routers that forwards packets based on a forwarding table constructed in accordance with a multicast routing tree; page 6 lines 33-35, discloses the forwarding table in each of, for example, nodes N1-N11 is generated from the multicast routing tree).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Hori with Kodialam’s forwarding table that is based on a multicast tree to have guaranteed service levels in a network for multicast routing of packets (Kodialam, Field of the Invention).

The combination of Hori and Kodialam does not, but Miller does disclose describing an IP multicast address in the forwarding rule when a next packet distribution destination is capable of communicating in IP multicast or describing an IP address of an end node of the next packet distribution destination in the forwarding rule when the next packet distribution destination is not capable of

Art Unit: 4144

communicating in IP multicast, wherein the sender end node checks an address attribute described in the forwarding rule and switches between IP multicast and IP unicast (page 2 paragraph [0020], discloses a forwarding rule is configured at a server translating received unicast, broadcast, or multicast packets into unicast, broadcast, or multicast packets; page 5 paragraph [0048], discloses a sender creating a forwarding rule for the next packet distribution destination depending on the receiving end's receiving format; page 6 paragraph [0059], discloses a sender translating, discloses a server receiving multicast packets and then converting those packets into unicast packets and then transmits them to the next packet destination in unicast and then the receiver that received the unicast packet then translate the unicast packets into a multicast packet and then transmit the packets in multicast).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination of Hori and Kodialam's invention with Miller's forwarding rule to allow the sender and receiver of the packets to operate using different formats, such as multicast and unicast (Miller, page 1 paragraph [0002]).

As per claim 3, while the combination of Hori and Kodialam and in further view of Miller teaches the packet distribution control method according to claim 2, Miller teaches wherein when other end node capable of communicating in IP multicast is present among end nodes that are roots or branches of the multicast distribution tree, packet distribution is performed on the other end node using an IP multicast packet with the IP multicast address as a destination address, while

Art Unit: 4144

when other end node not capable of communicating in IP multicast is present among end nodes that are roots or branches of the multicast distribution tree, packet distribution is performed on the other end node using an IP unicast packet with the IP address of the other end node as a destination address (fig. 3 discloses a sender device sending data to a receiving device, 22; fig. 5 discloses a table that shows what format, either multicast or unicast, a receiver can receive data; fig 3. discloses a device, 22, sending data to receivers 24 in unicast. Note that this shows that the sender is able to know if the receiving device of the next packet destination can either perform multicast or unicast communication. Also, in sending multicast or unicast packet to a destination, it is inherent that IP multicasts address or IP unicast address must be in the destination address in order to send either a multicast or unicast packet).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination of Hori and Kodialam's invention with Miller's distribution policy to allow the sender and receiver of the packets to operate using different formats, such as multicast and unicast (Miller, page 1 paragraph [0002]).

15. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hori as applied to claim 1 above, and further in view of Kodialam.

As per claim 8, while Hori teaches the packet distribution control method according to claim 1, Hori does not, but Kodialam teaches wherein information of end nodes and information of join and leave of the end nodes are exchanged

Art Unit: 4144

between a management server that manages end nodes joining multicast communication and the end nodes, and the management server manages the end nodes (page 7 lines 27-28, discloses the route server may be embodied within network management module; page 5 lines 5-16, discloses the network management module may collect and distribute network topology information, generate forwarding tables and other connection set-up information that may be downloaded into corresponding routers (end nodes)).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hori's invention with Kodialam's server to enable re-routing of connections to reflect failed links (Kodialam, page 5 lines 33-35).

16. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Chen and Acharya as applied to claim 9 above, and in further view of Kodialam.

As per claim 10, while the combination of Chen and Acharya teaches the communication terminal according to claim 9, the combination of Chen and Acharya does not, but Kodialam teaches wherein the communication terminal exchanges information of other end nodes and information of join and leave of the other end nodes with a management server that manages end nodes joining multicast communication (page 14 lines 25-26, discloses a set of receivers joining or leaving a set of receivers; page 5 lines 53-55, discloses nodes N5, N9 and N11 as

Art Unit: 4144

receivers connected to routers; page 14 lines 29-34, discloses when receivers join a multicast tree, the multicast tree is re-computed using the NNF (Nearest Node First) algorithm; page 14 lines 41-45, discloses when a set of receivers leaves a multicast tree, the edges and nodes that are not contained in the tree are removed from the multicast tree; page 5 lines 5-8, discloses the network management module included in one or more distributed router servers coupled to the routers of nodes N1-N11; page 5 lines 8-14, discloses the network management module generating multicast routing trees, forwarding tables, other connection set-up information and store the network topology information. Note that in order for the network management to obtain the network topology information, the information of join or leave of receivers must be transmitted to the network management module via the router, hence an exchange of information between a router and a server).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination of Chen and Acharya's invention with Kodialam's server to enable re-routing of connections to reflect failed links (Kodialam, page 5 lines 33-35).

Allowable Subject Matter

17. **Claims 5-7** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 5,361,256 Doeringer et al. Discloses a method and system for multicasting within a conventional unicast transmission network.

U.S. Patent 5,331,637 Francis et al. Discloses a method for routing multicast packets within a network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER CHAU whose telephone number is (571)270-7152. The examiner can normally be reached on Monday-Friday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Taghi Arani can be reached on 571-242-3787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 4144

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. C./

Examiner, Art Unit 4144

/Taghi T. Arani/

Supervisory Patent Examiner, Art Unit 4144